AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Clean Water Act as amended, (33 U.S.C. §§1251 et seq.; the "CWA"), and the Massachusetts Clean Waters Act, as amended, (M.G.L. Chap. 21, §§26-53),

Town of Athol
Department of Public Works

is authorized to discharge from the facility located at

Athol Wastewater Treatment Plant
Jones Street
Athol, MA 01331

to the receiving water named

Millers River (Segment MA35-04)

in accordance with effluent limitations, monitoring requirements, and other conditions set forth herein.

This permit will become effective on August 1, 2008.

This permit and the authorization to discharge expire at midnight on July 31, 2013.

This permit supersedes the permit issued on December 29, 2003.

This permit consists of Part I including effluent limitations and monitoring requirements, Part II including General Conditions and Definitions, Attachment A, the Freshwater Chronic Toxicity Test Procedure and Protocol, and Attachment B, Summary of Required Reports.

Signed this 30th day of June, 2008

/S/ SIGNATURE ON FILE

Director
Office of Ecosystem Protection
Environmental Protection Agency
Boston, MA

Director
Division of Watershed Management
Department of Environmental Protection
Commonwealth of Massachusetts
Boston, MA

Part I. A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge treated effluent from outfall serial number **001**. Such discharges shall be limited and monitored by the permittee as specified below.

Effluent Characteristic	**Units**	**Effluent Limitations**			**Monitoring Requirements**	
		Average Monthly	**Average Weekly**	**Maximum Daily**	**Measurement Frequency**	**Sample Type**[2]
Flow[1]	mgd	1.75 Report	*** ***	Report ***	continuous	Recorder
BOD[3]	mg/l lbs/day	30 438	45 657	Report	1/week	24-hour composite[4]
TSS[3]	mg/l lbs/day	30 438	45 657	Report	1/week	24-hour composite
pH[5]	s.u.	6.5 – 8.3			1/day	grab
Dissolved Oxygen	NOT LESS THAN 6.0 mg/l AT ANY TIME				1/day	grab
Fecal Coliform[5,6] (April 1 – October 31)	cfu/100ml	200	***	400	1/week	grab
E. coli[5,6] (April 1 – October 31)	cfu/100ml	126	***	409	1/week	grab
Total Residual Chlorine[5,7,8]	mg/l	Report	***	Report	1/day	grab
Total Phosphorus[9]						
(April 1 – October 31)	mg/l	0.52	***	Report	1/week	24-hour composite
(November 1 – March 31)	mg/l	1.0	***	Report	1/week	24-hour composite

Effluent characteristic	Units	Effluent Limitations			Monitoring Requirements	
		Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type
Dissolved Orthophosphate (November 1- March 31)	mg/l	Report	***	Report	1/month	24-hour composite
Total Nitrogen[10]	mg/l	Report	***	Report	1/month	24-hour composite
	lbs/day	Report	***			
Total Kjeldahl Nitrogen	mg/l	Report	***	Report	1/month	24-hour composite
	lbs/day	Report	***			
Total Ammonia Nitrogen	mg/l	Report	***	Report	1/month	24-hour composite
	lbs/day	Report	***			
Nitrate + Nitrite Total	mg/l	Report	***	Report	1/month	24-hour composite
	lbs/day	Report	***	Report	1/month	24-hour composite
Copper[11]	ug/l	28	***	38	1/month	24-hour composite
Silver[12]	ug/l	***	***	Report	1/month	24-hour composite
Whole Effluent Toxicity[13,14,15]	%		Acute LC50 ≥100% Chronic NOEC ≥ 10%		1/quarter	24-hour composite

Footnotes:

1. The average monthly flow limit is an annual average limit which shall be reported as a rolling average. The DMR will report the average flow that is calculated from that month and the previous 11 months. In addition, report the average monthly flow and maximum daily flow for each month.

2. All sampling shall be representative of the influent and of the effluent discharged through outfall 001 to the Millers River. A routine sampling program shall be developed in which samples are taken at the same location, same time, and same days of every month. Any deviations from the routine sampling program shall be documented in correspondence appended to the applicable discharge monitoring report that is submitted to EPA. All samples shall be tested using the analytical methods found in 40 CFR §136, or alternative methods approved by EPA in accordance with the procedures in 40 CFR §136. All samples shall be 24-hour composites unless specified as a grab sample in 40 CFR §136.

3. Sampling required for influent and effluent.

4. 24-hour composite samples will consist of at least twenty-four (24) grab samples taken during a consecutive 24-hour period (e.g. 7:00 am Monday to 7:00 am Tuesday) and combined proportional to flow.

5. Required for State certification.

6. The average monthly limits for fecal colifom and *E. coli* are expressed as geometric means. The fecal coliform limits shall expire one year after the effective date of this permit. The *E. coli* limits shall become effective one year after the effective date of this permit. For the first year, the *E. coli* limits shall be report only. The samples for *E. coli* and fecal coliform shall be taken at the same time.

7. The use of chlorine for disinfection is prohibited. A sample for Total Residual Chlorine shall be taken whenever a source of chlorine is introduced into the wastewater treatment process and shall be taken at the appropriate time to be representative of the chlorine levels in the discharge. After submitting one year of sampling results demonstrating "no "reasonable potential" to exceed the water quality criteria, the permittee may request that this chlorine reporting requirement be eliminated.

8. The minimum level (ML) for Total Residual Chlorine (TRC) is defined as 20 ug/l using EPA approved methods found in the most currently approved version of Standard Methods for the Examination of Water and Wastewater, Method 4500 CL-E and G. One of these methods must be used to determine TRC. The ML is not the minimum level of detection, but rather the lowest point on the curve used to calibrate the test equipment for the pollutant of concern. If EPA approves a more sensitive method of analysis for TRC, the permit may be reopened to require the use of the new method with a corresponding lower ML. When reporting sample data at or below the ML, see the latest EPA Region NPDES Permit Program Instructions for the Discharge Monitoring Report Forms (DMRs) for guidance.

9. See Part I.E. COMPLIANCE SCHEDULE for phosphorus limits.

10. See Part I.F. SPECIAL CONDITIONS for requirements to evaluate and implement optimization of nitrogen removal.

11. The minimum level (ML) for copper is defined as 3 ug/l. This value is the minimum level for copper using the Furnace Atomic Absorption analytical method (EPA Method 220.2). This method or other EPA-approved method with an equivalent or lower ML shall be used for effluent limitations less than 3 ug/l. Compliance/non-compliance will be determined based on the ML. Sampling results of 3 ug/l or less shall be reported as zero on the Discharge Monitoring Report.

12. The minimum level (ML) for silver is defined as 2 ug/l. This value is the minimum level for silver using the Furnace Atomic Absorption analytical method (EPA Method 220.2).

13. The permittee shall conduct toxicity tests 4 times per year. The permittee shall test the daphnid, *Ceriodaphnia dubia*, only. Toxicity test samples shall be collected during the second week in the months of January, April, July, and October. The test results shall be submitted by February 28th, May 31st, August 31st, and November 30th, respectively. The tests must be performed in accordance with the Freshwater Chronic Toxicity Test Procedure and Protocol (Attachment A).

14. If toxicity test(s) using receiving water as diluent show the receiving water to be toxic or unreliable, the permittee shall either follow procedures outlined in **Attachment A (Toxicity Test Procedure and Protocol**) **Section IV., DILUTION WATER** in order to obtain an individual approval for use of an alternate dilution water, or the permittee shall follow the Self-Implementing Alternative Dilution Water Guidance which may be used to obtain automatic approval of an alternate dilution water, including the appropriate species for use with that water. This guidance is found in Attachment G of NPDES Program Instructions for the Discharge Monitoring Report Forms (DMRs) which is sent to all permittees with their annual set of DMRs and may also be found on the EPA, Region I web site at http://www.epa.gov/region1/enforcementandassistance/dmr2007.pdf. If this guidance is revoked, the permittee shall revert to obtaining individual approval as outlined in **Attachment A**. Any modification or revocation to this guidance will be transmitted to the permittees as part of the annual DMR instruction package. However, at any time, the permittee may choose to contact EPA-New England directly using the approach outlined in **Attachment A**.

15. The LC_{50} is the concentration of effluent which causes mortality to 50% of the test organisms. Therefore, a 100% limit means that a sample of 100% effluent shall cause no more than a 50% mortality rate. C-NOEC (chronic-no observed effect concentration) is defined as the highest concentration of toxicant or effluent to which organisms are exposed in a life cycle or partial life cycle test which causes no adverse effect on growth, survival, or reproduction at a specific time of observation as determined from hypothesis testing where the test results exhibit a linear dose-response relationship. However, where the test results do not exhibit a linear dose-response relationship, the permittee must report the lowest concentration where there is no observable effect. The "10% or greater"

limit is defined as a sample which is composed of 10% (or greater) effluent, the remainder being dilution water.

I.A.1. (continued)

a. The discharge shall not cause a violation of the water quality standards of the receiving waters.

b. The discharge shall not cause objectionable discoloration of the receiving waters.

c. The effluent shall not contain a visible oil sheen, foam, or floating solids at any time.

d. The permittee's treatment facility shall maintain a minimum of 85 percent removal of both total suspended solids and biochemical oxygen demand. The percent removal shall be based on monthly average values.

e. Sample results using EPA approved methods for any parameter above its required frequency must also be reported.

f. If the average annual flow in any calendar year exceeds 80 percent of the facility's design flow, the permittee shall submit a report to MassDEP by March 31 of the following calendar year describing its plans for further flow increases and describing how it will maintain compliance with the flow limit and all other effluent limitations and conditions.

2. All POTWs must provide adequate notice to the director of the following:

a. Any new introduction of pollutants into that POTW from an indirect discharger in a primary industry category discharging process water; and/or

b. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of the permit issuance.

c. For the purposes of this paragraph, adequate notice shall include information on:

(i) The quantity and quality of effluent introduced into the POTW; and

(ii) Any anticipated impact of the change on the quantity and quality of effluent to be discharged from the POTW.

3. Prohibitions Concerning Interference and Pass Through

a. Pollutants introduced into POTWs by a non-domestic source (user) shall not pass through the POTW or interfere with the operation or performance of the works.

b. If, within 30 days after notice of an interference or pass through violation has been sent by EPA to the POTW, and to persons or groups who have requested such notice, the

POTW fails to commence appropriate enforcement action to correct the violation, EPA may take appropriate enforcement action.

4. Toxics Control

a. The permittee shall not discharge any pollutant or combination of pollutants in toxic amounts.

b. Any toxic components of the effluent shall not result in any demonstrable harm to aquatic life or violate any state or federal water quality standard which has been or may be promulgated. Upon promulgation of any such standard, this permit may be revised or amended in accordance with such standards.

5. Numerical Effluent Limitations for Toxicants

EPA or the MassDEP may use the results of the toxicity tests and chemical analyses conducted pursuant to this permit, as well as national water quality criteria developed pursuant to Section 304(a)(1) of the Clean Water Act (CWA), state water quality criteria, and any other appropriate information or data, to develop numerical effluent limitations for any pollutants including, but not limited to, those pollutants listed in Appendix D of 40 CFR Part 122.

B. UNAUTHORIZED DISCHARGES

The permit only authorizes discharges in accordance with the terms and conditions of this permit and only from the outfall listed in PART 1.A.1. of this permit. Discharges of wastewater from any other point sources, including sanitary sewer overflows (SSOs) from any portion of the collection system are not authorized by this permit and shall be reported in accordance with Section D.1.e. (1) of the General Requirements of this permit (Twenty-four hour reporting). Notification of SSOs to MassDEP shall be made on its SSO Reporting Form (which includes DEP Regional Office telephone numbers). The reporting form and instruction for its completion may be found on-line at: http://www.mass.gov/dep/water/approvals/surffms.htm#sso.

C. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

Operation and maintenance of the sewer system shall be in compliance with the General Requirements of Part II and the following terms and conditions:

1. Maintenance Staff

The permittee shall provide an adequate staff to carry out the operation, maintenance, repair, and testing functions required to ensure compliance with the terms and conditions of this permit.

2. Preventative Maintenance Program

The permittee shall maintain an ongoing preventative maintenance program to prevent overflows and bypasses caused by malfunctions or failures of the sewer system

infrastructure. The program shall include an inspection program designed to identify all potential and actual unauthorized discharges.

3. Infiltration/Inflow Control Plan

The permittee shall develop and implement a plan to control infiltration and inflow (I/I) to the separate sewer system. The plan shall be submitted to EPA and MassDEP within six months of the effective date of this permit and shall describe the permittee's program for preventing I/I related effluent limit violations, and all unauthorized discharges of wastewater, including overflows and by-passes due to excessive infiltration/inflow.

The plan shall include:

- An ongoing program to identify and remove sources of I/I. The program shall include the necessary funding level and the source(s) of funding.
- An inflow identification and control program that focuses on the disconnection and redirection of illegal sump pumps and roof down spouts. Priority should be given to the removal of public and private inflow sources that are upstream from, and potentially contribute to, known areas of sewer system backups and/or overflows.
- Identification and prioritization of areas that will provide increased aquifer recharge as the result of reduction/elimination of I/I to the system.
- An educational public outreach program for all aspects of I/I control, particularly private inflow.

Reporting Requirements

A summary report of all actions taken to minimize I/I during the previous calendar year shall be submitted to EPA and the MassDEP annually, by the anniversary date of the effective date of this permit. This summary report shall, at a minimum, include:

- A map and description of inspection and maintenance activities conducted and corrective actions taken during the previous year.
- Expenditures for any I/I related maintenance activities and corrective actions taken during the previous year.
- A map with areas identified for I/I-related investigation/action during the coming year.
- A calculation of the annual average I/I, the maximum month I/I for the reporting year.

- A report of any I/I related corrective actions taken as a result of unauthorized discharges reported pursuant to 314 CMR 3.19(20) and reported pursuant to Section B. UNAUTHORIZED DISCHARGES of this permit.

4. Alternative Power Source

   In order to maintain compliance with the terms and conditions of this permit, the permittee shall continue to provide an alternative power source with which to sufficiently operate its treatment works (as defined at 40 CFR §122.2).

D. SLUDGE CONDITIONS

1. The permittee shall comply with all existing federal and state laws and regulations that apply to sewage sludge use and disposal practices and with the CWA Section 405(d) technical standards.

2. The permittee shall comply with the more stringent of either the state or federal (40 CFR part 503), requirements.

3. The requirements and technical standards of 40 CFR part 503 apply to facilities which perform one or more of the following uses or disposal practices:

   a. Land application – the use of sewage sludge to condition or fertilize the soil

   b. Surface disposal – the placement of sewage sludge in a sludge-only landfill

   c. Sewage sludge incineration in a sludge-only incinerator

4. The 40 CFR Part 503 conditions do not apply to facilities which place sludge within a municipal solid waste landfill. These conditions also do not apply to facilities which do not dispose of sewage sludge during the life of the permit but rather treat the sludge (e.g. lagoons – reed beds) or are otherwise excluded under 40 CFR 503.6

5. The permittee shall use and comply with the sludge compliance guidance document to determine appropriate conditions. Appropriate conditions contain the following elements:

   - General requirements
   - Pollutant limitations
   - Operational standards (pathogen reduction requirements and vector attraction requirements)
   - Management practices
   - Record keeping
   - Monitoring
   - Reporting

   Depending upon the quality of the material produced by a facility, all conditions may not apply to the facility.

6. The permittee shall monitor the pollutant concentrations, pathogen reduction and vector attraction reduction at one of the following frequencies. The frequency is based upon the volume of sewage sludge generated at the facility in dry metric tons per year:

Volume of dry sludge	Frequency
less than 290	1/year
290 to less than 1,500	1/quarter
1,500 to less than 15,000	6/year
Over 15,000	1/month

7. The permittee shall sample the sewage sludge using the procedures detailed in 40 CFR 503.8.

8. The permittee shall submit an annual report containing the information specified in the guidance by February 19. Reports shall be submitted to the address contained in the reporting section of the permit. Sludge monitoring by the permittee is not required when the permittee is not the responsible for the ultimate sludge disposal. The permittee must be assured that any third party contractor is in compliance with appropriate regulatory requirements. In such case, the permittee is required only to submit an annual report by February 19 containing the following information:

    - Name and address of contractor responsible for sludge disposal
    - Quantity of sludge in dry metric tons removed from the facility by the sludge contractor

E. COMPLIANCE SCHEDULE

1. For one year after the effective date of this permit, the Town shall optimize phosphorus removal at the WWTF to determine whether the April 1- October 31 total phosphorus limitations can be achieved by the existing WWTF. Optimization efforts shall include effluent monitoring of total phosphorus at a frequency sufficient to demonstrate whether compliance is achievable. The 1.0 mg/l phosphorus limit for the period November 1 – March 31 shall become effective November 1, 2008.

2. By November 30, 2009, the Town shall submit a report to EPA and the Massachusetts Department of Environmental Protection ("MassDEP") describing its optimization efforts and notify EPA and MassDEP whether, based on its optimization efforts, the WWTF is capable of achieving the seasonal phosphorus limitation of 0.52 mg/l. If it determines it is capable of achieving that limit, then the Town shall meet the April 1 - October 31 limitation commencing on April 1, 2010.

3. If the Town determines that the permit's seasonal phosphorus limit of 0.52 mg/l cannot be met through optimization alone, then the Town shall plan, design, and construct an upgrade and achieve the total phosphorus limits in accordance with the following schedule.

a. By May 31, 2010, the Town shall submit to EPA and MassDEP a Facilities Plan that, at a minimum, evaluates the capabilities of the WWTF's unit operations and processes (the "Facilities Plan") to comply with the permit's total phosphorus limits and describe all WWTF upgrades and process modifications that are recommended to achieve compliance with the total phosphorus limits contained in the permit.

b. By July 1, 2010, the Town shall initiate design of the recommended WWTF upgrades and process modifications recommended by the Facilities Plan.

c. By July 1, 2011, the Town shall complete design of the recommended WWTF upgrades and process modifications recommended by the Facilities Plan.

d. By March 1, 2013, the Town shall complete construction of the WWTF upgrades and modifications and shall attain compliance with the total phosphorus limitation in effect for the period April 1 through October 31.

4. If the Town determines that an upgrade is necessary, the Town shall optimize the phosphorus removal at the WWTF, and at a minimum, comply with an interim effluent limitation for total phosphorus of 1.0 mg/l.

F. SPECIAL CONDITIONS

Within one year of the effective date of the permit, the permittee shall complete an evaluation of alternative methods of operating the existing wastewater treatment facility to optimize the removal of nitrogen, and submit a report to EPA and MassDEP documenting this evaluation and presenting a description of recommended operational changes. The methods to be evaluated include, but are not limited to, operational changes designed to enhance nitrification (seasonal and year round), incorporation of anoxic zones, septage receiving policies and procedures, and side stream management. The permittee shall implement the recommended operational changes in order to maintain the existing mass discharge loading of total nitrogen. The annual average total nitrogen load from this facility (2004 – 2005) is estimated to be 199 lbs/day.

The permittee shall also submit an annual report to EPA and MassDEP, by February 1 each year, that summarizes activities related to optimizing nitrogen removal efficiencies, documents the annual nitrogen discharge load from the facility, and tracks trends relative to the previous year.

G. MONITORING AND REPORTING

Monitoring results obtained during each calendar month shall be summarized and **reported on the Discharge Monitoring Report Form(s) postmarked no later than the 15th day of the following month.**

Signed and dated originals of these, and all other reports required herein, shall be submitted to the Director and the State at the following addresses:

Environmental Protection Agency
Water Technical Unit (SEW)
P.O. Box 8127
Boston, MA 02114

and

Massachusetts Department of Environmental Protection
Bureau of Resource Protection
Western Regional Office
436 Dwight Street
Springfield, MA 01103

Signed and dated Discharge Monitoring Report Forms and toxicity test reports as well as reports indicated in Attachment B required by this permit shall also be submitted to the State at:

Massachusetts Department of Environmental Protection
Division of Watershed Management
Surface Water Discharge Permit Program
627 Main Street, 2nd Floor
Worcester, MA 01608

H. STATE PERMIT CONDITIONS

This discharge permit is issued jointly by the Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) under Federal and State law, respectively. As such, all the terms and conditions of this permit are hereby incorporated into and constitute a discharge permit issued by the Commissioner of the MassDEP pursuant to M.G.L. Chap. 21 §43.

Each agency shall have the independent right to enforce the terms and conditions of this permit.

Any modification, suspension or revocation of this permit shall be effective only with respect to the agency taking such action, and shall not affect the validity or status of this permit as issued by the other agency, unless and until each agency has concurred in writing with such modification, suspension or revocation. In the event any portion of this permit is declared invalid, illegal or otherwise issued in violation of State law such permit shall remain in full force and effect under Federal law as a NPDES permit issued by the U.S. Environmental Protection Agency. In the event this permit is declared invalid, illegal or otherwise issued in violation of Federal law, this permit shall remain in full force and effect under State law as a permit issued by the Commonwealth of Massachusetts.

Attachment B

Summary of Required Reports (NPDES Permit No. MA0100005)

This table is a summary of reports required to be submitted under this NPDES permit as an aid to the permittee. If there are any discrepancies between the permit and this summary, the permittee shall follow the permit requirements.

Required Report	**Date Due**	**Submitted To: (see bottom of page for key)**
Discharge Monitoring Report (DMR)	Monthly, postmarked by the 15th of the month following the monitoring month (e.g. the March DMR is due by April 15th.	1, 2, 3
Whole Effluent Toxicity (WET)Test Report (Part I.A.1)	May 31, August 31, November 30, and February 28 each year	1, 3
I/I Control Plan (Part I.C.3.)	Within 6 months of permit effective date	1, 2
I/I Annual Report (Part I.C.3.)	March 31 each year	1, 2
Annual Sludge Report (Part I.D.8.)	February 19 each year	1, 2
Phosphorus removal evaluation report (Part I.E.2.)	November 30, 2009	1, 2, 3
*Submit Facilities Plan to meet 0.52 mg/l phosphorus limit	May 31, 2010	1, 2
*Initiation of design of recommended upgrades	July 1, 2010	1, 2
*Complete design of necessary upgrades	July 1, 2011	1, 2
*Complete construction of necessary upgrades	March 1, 2013	1, 2
Nitrogen Removal Evaluation Report (Part I.F.)	Within 1 year of permit effective date	1, 2, 3
Annual Nitrogen Removal Optimization Report (Part I.F.)	February 1	1, 2, 3

*Necessary only if existing facilities need to be upgraded to meet seasonal phosphorus limit of 0.52 mg/l.

1. EPA
Water Technical Unit (SEW)
P.O. Box 8127
Boston, Massachusetts 02114

2. Mass DEP
Bureau of Resource Protection
Western Regional Office
436 Dwight Street
Springfield, MA 01103

3. Mass DEP
Division of Watershed Management
Surface Water Discharge Permit Program
627 Main Street, 2nd Floor
Worcester, Massachusetts 01608

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND
1 CONGRESS STREET
SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

FACT SHEET

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO THE WATERS OF THE UNITED STATES.

NPDES NO: **MA0100005**

NAME AND ADDRESS OF APPLICANT:

Town of Athol
Department of Public Works
584 Main Street
Athol, Massachusetts 01331

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Town of Athol Wastewater Treatment Plant
Jones Street
Athol, Massachusetts 01364

RECEIVING WATER: **Millers River (Segment MA35-04)**

CLASSIFICATION: **B (Warm Water Fishery)**

LATITUDE: **42° 35' 10" N** LONGITUDE: **72° 14' 33" W**

I. Proposed Action, Type of Facility, and Discharge Location

The above named applicant has requested that the U.S. Environmental Protection Agency and the Massachusetts Department of Environmental Protection (MassDEP) reissue its NPDES permit to discharge into the designated receiving water, the Millers River. The location of the wastewater treatment facility is shown in Figure 1.

The Town of Athol Wastewater Treatment Facility (WWTF) is a 1.75 million gallons per day (MGD) secondary treatment plant serving a population of 9,836. There are two categorical industrial users (CIUs) which discharge to the Athol WWTF. These are: L.S. Starrett, a manufacturer of precision tools, and Filtrona, an extruder for medical tubing.

There are ongoing facility improvements which include new headworks, UV disinfection facilities, and sludge handling facilities. It is anticipated that these improvements will be complete by final permit issuance. There is no change in the design capacity of plant due to these improvements. A process flow diagram of the upgraded facility is shown on Figure 2.

Approximately 270 tons of dried sludge is hauled annually to the East Fitchburg WWTF for incineration.

II. Description of Discharge

A quantitative description of the discharge in terms of significant effluent parameters based on recent monitoring data is shown in Attachment 1.

III. Permit Limitations and Conditions

The effluent limitations of the draft permit and the monitoring requirements may be found in the draft NPDES permit.

IV. Permit Basis and Explanation of Effluent Limitation Derivation

The Clean Water Act (CWA or the Act) prohibits the discharge of pollutants to waters of the United States without an NPDES permit unless such a discharge is otherwise authorized by the Act. An NPDES permit is used to implement technology-based and water quality-based effluent limitations and monitoring, reporting, and other requirements. This draft NPDES permit was developed in accordance with statutory and regulatory authorities established pursuant to the Act. The regulations governing the NPDES program are found in 40 CFR Parts 122, 124 and 125 and Part 133 for secondary treatment.

EPA is required to consider technology and water quality requirements when developing permit effluent limits. Technology based treatment requirements represent the minimum level of control
that must be imposed under Sections 402 and 301(b) of the Act (see 40 CFR 125 Subpart A). Technology based limitations for POTWs are based upon secondary treatment and are found at 40CFR Part 133.

Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on water quality standards. The Massachusetts Surface Water Quality Standards, 314 CMR 4.00, include requirements for the regulation and control of toxic constituents and also require that EPA criteria, established pursuant to Section 304(a) of the CWA, shall be used unless a site specific criteria is established. The State will limit or prohibit discharges of pollutants to surface waters to assure that surface water quality standards of the receiving waters are protected and maintained.

The permit must also limit any pollutant or pollutant parameter (conventional, non-conventional, toxic, and whole effluent toxicity) that is, or may be, discharged at a level that caused, or has reasonable potential to cause, or contribute to an excursion above any water quality criterion [40 CFR §122.44(d)(1)]. An excursion occurs if the projected or actual instream concentrations exceed the applicable criterion. In determining reasonable potential, EPA considers existing controls on point and non-point sources of pollution, variability of the pollutant in the effluent, sensitivity of the species to toxicity and, where appropriate, the dilution of the effluent in the receiving water.

Also note that according to Section 402 (o) of the Clean Water Act and EPA regulation 40 CFR § 122.44(l), when a permit is reissued, effluent limitations, standards, or conditions must be at least as stringent as the final effluent limitations, standards or conditions in the previous permit, except under certain limited circumstances. In addition, in accordance with regulations found at 40 CFR Section 131.12, MassDEP has developed and adopted a statewide antidegradation policy to maintain and protect existing in-stream water quality. The Massachusetts Antidegradation Provisions are found at Title 314 CMR 4.04. No lowering of water quality is allowed, except in accordance with the antidegradation provisions.

The limits in the draft permit are based on information in the application, the existing permit, discharge monitoring reports, and toxicity test results.

Waterbody Classification and Usage

The Millers River is classified as a Class B, warm water fishery waterbody. The Massachusetts Surface Water Quality Standards (314 CMR 4.05(3)(b)) state that Class B waters shall have the following designated uses:

> *"These waters are designated as habitat for fish, other aquatic life and wildlife, and for primary and secondary contact recreation. Where designated they shall be suitable as a source of public water supply with appropriate treatment. They shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value."*

This 18.5 mile segment of the Millers River receiving the Athol WWTF discharge extends from the USGS Station No. 01164000 in South Royalston to the Erving Center WWTP discharge. The *"Millers River Watershed 2000 Water Quality Assessment Report"* concludes that the aquatic life designated use is impaired in the upper 6.6 miles and "Alert Status" for the lower 11.9 miles due to PCB contamination from contaminated sediment and release from waste sites and dumps. The PCB contamination and mercury are responsible for the "impaired" status for fish consumption in this segment. The aesthetics use is supported and the other designated uses, primary and secondary contact, were not assessed. The *Proposed Massachusetts Year 2006*

Integrated List of Waters 303 (d) list identifies non-attainment due to priority organics, metals, nutrients, and pathogens.

Flow and Dilution Factor

The existing permitted average daily flow of the facility is 1.75 mgd (2.71 cfs). The 7Q10 flow of 23.98 cfs used in the current permit is from the 2000 Water Quality Assessment Report. A review indicated that the 7Q10 flow is still valid and will be used in the calculations for this permit. Therefore the dilution factor for the facility is as follows:

7Q10@ WWTF discharge = 23.98 cfs
Design flow = 1.75 mgd = 2.71 cfs

Dilution factor = (River 7Q10 @ Discharge + Design Flow) ÷ Design Flow
Dilution Factor = (23.98 + 2.71) ÷ 2.71 = 9.8 = 10

BOD and TSS

As discussed above, the secondary treatment requirements for Publicly Owned Treatment Works (40 CFR Part 133) shall be used in establishing this permit's limits for BOD and TSS. The calculations for the monthly and weekly average BOD and TSS mass limits are:

mass limits	Flow x Concentration x Conversion Factor = lbs/day
30-day average	1.75mgd x 30 mg/l x 8.34(lb)(l)/(mg)(gal) = 438 lbs/day
7-day average	1.75mgd x 45 mg/l x 8.34(lb)(l)/(mg)(gal) = 657 lbs/day

These are the same as in the existing permit and are maintained in the draft permit.

The eighty-five percent (85%) removal requirement for BOD and TSS is from the secondary treatment requirements of 40 CFR Part 133.

Fecal coliform, *E. coli* and pH

The limitations for pH and fecal coliform are based upon water quality considerations and the Massachusetts state certification requirements under Section (401) (a) (1) of the Clean Water Act, as defined in 40 CFR §124.53 and water quality standards. The MassDEP has determined that disinfection may be provided seasonally in recognition that contact recreation, such as swimming, boating, and fishing, is not likely to occur from the early autumn through the early spring months.

On December 29, 2006 the State approved Water Quality Standards which includes a revision to the bacteria criteria. Several scientific studies have demonstrated that *E. coli* is a better indicator than coliform of potential human health effects of bacteria from certain recreational uses, such as swimming. EPA approved this revision to the State water quality standards on

September 19, 2007. Consequently, the draft permit contains *E.coli* limits that will become effective one year after the effective date of the permit. For the first year, there is a *report-only* requirement for *E.coli* as an adjustment period for the facility. The draft permit contains a fecal coliform limit as an interim limit during that first year, after which it will expire.

Total Residual Chlorine

Total Residual Chlorine (TRC) water quality criteria are established in the *Quality Criteria for Water 1986* (the Gold Book) and the subsequent 2002 update and have been adopted into the State Water Quality Standards. The in-stream criteria shall not exceed 11 ug/l for chronic toxicity and 19 ug/l for acute toxicity to protect aquatic life. Allowing for available dilution, the TRC permit limit calculations for the current permit are shown below.

Average Monthly Chlorine Limit = 11 ug/l * 10 = 110 ug/l = 0.11 mg/l
Daily Maximum Chlorine Limit = 19 ug/l * 10 = 190 ug/l = 0.19 mg/l

It is anticipated that by the effective date of the final permit, the existing chlorination facilities will be replaced by the new UV disinfection facilities. Consequently, this draft permit eliminates the current chlorine limits and prohibits the use of chlorine for disinfection purposes.

However, for operation and maintenance purposes, the facility will use a chlorine tablet system to chlorinate the sludge return line and the plant water system. It is believed that these limited uses of chlorine do not present a "reasonable potential to exceed" the water quality criteria for chlorine. To validate this position, the draft permit requires chlorine reporting whenever chlorine is introduced into the wastewater stream.

After submitting one year of data demonstrating no "reasonable potential to exceed" the water quality criteria, the permittee may request that the chlorine reporting requirement be eliminated. If the data indicates that a chlorine limit is necessary, the permit may be reopened and numerical chlorine limits added to the permit.

Phosphorus

Phosphorus interferes with water uses and reduces in-stream dissolved oxygen. State water quality standards (314 CMR 4.04(5) Control of Eutrophication) require any existing point source discharge containing nutrients in concentrations which encourage eutrophication or growth of weeds or algae shall be provided with the highest and best practicable treatment to remove such nutrients. As discussed above, this segment of the Millers River appears on the Massachusetts 303(d) list for nutrients.

EPA has published national guidance documents which contain recommended total phosphorus criteria and other indicators of eutrophication. EPA's *Quality Criteria for Water 1986* (the Gold Book) recommends, in order to control eutrophication, that in-stream phosphorus concentrations should be less than 100 ug/l (0.100 mg/l) in streams or other flowing waters not discharging directly to lakes or impoundments.

More recently, EPA released Ecoregional Nutrient Criteria, established as part of an effort to reduce problems associated with excess nutrients in water bodies in specific areas of the country. The published ecoregion-specific criteria represent conditions in waters minimally impacted by human activities, and thus representative of water without cultural eutrophication. The Town of Athol Wastewater Treatment Facility is within Ecoregion XIV, Eastern Coastal Plain, Northeastern Coastal Zone. Recommended criteria for this ecoregion is found in *Ambient Water Quality Criteria Recommendations, Information Supporting the Development of State and Tribal Nutrient Criteria, Rivers and Streams in Ecoregion XIV*, published in December, 2001, and includes a total phosphorus criteria of 23.75 ug/l (0.024 mg/l).

EPA has decided to apply the Gold Book criterion because it was developed from an effects-based approach versus the reference conditions-based approach used to develop the ecoregion criteria. The effects-based approach is taken because it is more directly associated with an impairment to a designated use (e.g. fishing). The effects-based approach provides a threshold value above which water quality impairments are likely to occur. It applies empirical observations of a causal variable (i.e. phosphorus) and a response variable (i.e. algal growth) associated with designated use impairments. Referenced-base values are statistically derived from a comparison within a population of rivers in the same ecoregional class. They are a quantitative set of river characteristics (physical, chemical, and biological) that represent minimally impacted conditions.

Sampling data from the 2000 Water Quality Assessment Report indicated a summer in-stream phosphorus concentration of 52 ug/l at Station MI08, approximately 30 feet upstream of the Route 2A bridge in Athol. Accounting for this in-stream concentration, a permit limit for phosphorus is calculated as follows:

$$\{(Q_R + Q_{WWTP}) * C_{WQ} - (Q_R * C_R)\} / Q_{WWTP} = C_{WWTP}$$

where:

Q_R = 7Q10 flow of the Millers River = 23.98 cfs
Q_{WWTP} = Design Flow of Athol WWTP = 2.71 cfs
C_{WQ} = In-stream water quality criteria = 100 ug/l
C_R = In-stream phosphorus concentration = 52 ug/l
C_{WWTP} = Phosphorus concentration limit for Athol WWTP

{((23.98 cfs + 2.71 cfs) * 100 ug/l) – (23.98 cfs *52) ug/l} / 2.71 cfs =
{2669 – 1247} / 2.71 = 524.7 ug/l = 0.52 mg/l

The draft permit establishes the average monthly phosphorus at 0.52 mg/l for the period of May through October, the algal growing season. Surface waters can also be affected by the year-round accumulation of phosphorus. The accumulated phosphorus can be released during warmer water temperatures and contribute to algal growth. Consequently, the permit also establishes a 1.0 mg/l phosphorus limit from November through April. A 1.0 mg/l limit will be mostly

dissolved phosphorus, thereby reducing the potential of phosphorus accumulation.

If additional data or the completion of a Total Maximum Daily Loading (TMDL) indicates the need for more stringent limits, EPA and DEP may exercise the reopener clause of Part II A. 4 of this permit and modify the phosphorus numerical limits. The existing Average Weekly and Maximum Daily reporting requirements are also maintained. This data will support the development of the TMDL.

Nitrogen

In December 2000, the Connecticut Department of Environmental Protection (CT DEP) completed a Total Maximum Daily Load (TMDL) for addressing nitrogen-driven eutrophication impacts in Long Island Sound. The TMDL included a Waste Load Allocation (WLA) for point sources and a Load Allocation (LA) for non-point sources. The point source WLA for out-of-basin sources (Massachusetts, New Hampshire and Vermont wastewater facilities discharging to the Connecticut, Housatonic and Thames River watersheds) requires an aggregate 25% reduction from the baseline total nitrogen loading estimated in the TMDL.

The baseline total nitrogen point source loadings estimated for the Connecticut, Housatonic, and Thames River watersheds were 21,672 lbs/day, 3,286 lbs/day, and 1,253 lbs/day respectively (see table below). The estimated current point source total nitrogen loadings for the Connecticut, Housatonic, and Thames Rivers respectively are 13,836 lbs/day, 2,151 lbs/day, and 1,015 lbs/day. (Please note that EPA's current estimate of loadings to the Connecticut River is slightly greater than the estimates shown in Attachment 2 and 3 of CT DEP's comments, but is based on more recent information and includes all POTWs in the watershed). The following table summarizes the estimated baseline loadings, TMDL target loadings, and estimated current loadings:

Basin	Baseline Loading[1] lbs/day	TMDL Target[2] lbs/day	Current Loading[3] lbs/day
Connecticut River	21,672	16,254	13,836
Housatonic River	3,286	2,464	2,151
Thames River	1,253	939	1,015
Totals	26,211	19,657	17,002

1. Estimated loading from TMDL, (see Appendix 3 to CT DEP "Report on Nitrogen Loads to Long Island Sound", April 1998)
2. Reduction of 25% from baseline loading
3. Estimated current loading from 2004 – 2005 DMR data – detailed summary attached as Exhibit A.

The TMDL target of a 25 percent aggregate reduction from baseline loadings is currently being met, and the overall loading from MA, NH and VT wastewater treatment plants discharging to the Connecticut River watershed has been reduced by about 36 percent.

In order to ensure that the aggregate nitrogen loading from out-of-basin point sources does not exceed the TMDL target of a 25 percent reduction over baseline loadings, EPA intends to

include a permit condition for all existing treatment facilities in Massachusetts and New Hampshire that discharge to the Connecticut, Housatonic and Thames River watersheds, requiring the permittees to evaluate alternative methods of operating their treatment plants to optimize the removal of nitrogen, and to describe previous and ongoing optimization efforts. Facilities not currently engaged in optimization efforts will also be required to implement optimization measures sufficient to ensure that their nitrogen loads do not increase, and that the aggregate 25 % reduction is maintained. Such a requirement has been included in this permit. We also intend to work with the State of Vermont to ensure that similar requirements are included in its discharge permits.

Specifically, the permit requires an evaluation of alternative methods of operating the existing wastewater treatment facility in order to control total nitrogen levels, including, but not limited to, operational changes designed to enhance nitrification (seasonal and year round), incorporation of anoxic zones, septage receiving policies and procedures, and side stream management. This evaluation is required to be completed and submitted to EPA and MassDEP within one year of the effective date of the permit, along with a description of past and ongoing optimization efforts. The permit also requires implementation of optimization methods sufficient to ensure that there is no increase in total nitrogen compared to the existing average daily load. The annual average total nitrogen load from this facility (2004 – 2005) is estimated to be 199 lbs/day. The permit requires annual reports to be submitted that summarize progress and activities related to optimizing nitrogen removal efficiencies, document the annual nitrogen discharge load from the facility, and track trends relative to previous years.

The agencies will annually update the estimate of all out-of-basin total nitrogen loads and may incorporate total nitrogen limits in future permit modifications or reissuances as may be necessary to address increases in discharge loads, a revised TMDL, or other new information that may warrant the incorporation of numeric permit limits. There have been significant efforts by the New England Interstate Water Pollution Control Commission (NEIWPCC) work group and others since completion of the 2000 TMDL, which are anticipated to result in revised wasteload allocations for in-basin and out-of-basin facilities. Although not a permit requirement, it is strongly recommended that any facilities planning that might be conducted for this facility should consider alternatives for further enhancing nitrogen reduction.

Metals

The *EPA Quality Criteria for Water, 1986 (Gold Book)* set forth the methodology for establishing water quality criteria for metals. In the *National Recommended Water Quality Criteria: 2002* EPA updated its national recommended water quality criteria for pollutants. 314 CMR 4.05(5)(e) Toxic Pollutants of the State water Quality standards specifies *"The Department shall use the water quality criteria for the protection of aquatic life expressed in terms of the dissolved fraction of metals.*" Using copper as an example calculation, a hardness of 25 mg/l for the receiving water, used in the previous permit and in line with recent analyses of WET test diluent waters, and a conversion factor (CF) to convert recoverable to dissolved copper, the chronic and acute criteria calculations for the State water quality standards are as follows.

Chronic in-stream criteria	$e^{(0.8545*\ln 25+ (-1.702)} * 0.96$ (CF) = 2.74 ug/l
Acute in-stream criteria	$e^{(0.9422*\ln 25) + (-1.700)} * 0.96$ (CF) = 3.64 ug/l

EPA regulation 40 CFR §122.45(c) *Metals* requires that all permit effluent limitations for a metal be expressed in terms of "total recoverable metal". Thus, the copper limits are derived by multiplying the criteria by the dilution factor and dividing by a conversion factor.

Chronic copper limit	2.74 ug/l * 10 ÷ 0.96(CF) = 28 ug/l
Acute copper limit	3.64 ug/l * 10 ÷ 0.96(CF) = 38 ug/l

These limits are compared to available discharge data to determine the reasonable potential of the discharge to exceed the water quality criteria and the need for permit limits. The effluent data from the DMRs, WET test chemical analyses, and/or information provided in the permit application indicate copper levels well below the calculated limits. However, as recently as 2004, copper concentrations had been as high as 26 ug/l. Therefore, the draft permit maintains the copper limits so that a longer compliance history can be achieved.

Similar calculations for the other metals and data comparisons have been made in order to determine the necessity of permit limits for those metals. The current permit has an average monthly lead limit of 6.0 ug/l based upon the limit calculations. The effluent data from the DMRs, WET test chemical analyses, and/or information provided in the permit application indicate that a lead limit is not necessary and it has been removed from the draft permit.

Studies conducted to establish water quality criteria for silver could not definitively determine its chronic effects. Consequently, there is only an acute criteria. The calculated maximum daily limit for silver is 4.0 ug/l. The only available data comes from the extended effluent testing data from 3 samples submitted with the application. The maximum daily concentration reported in the application is 4.4 ug/l. Because the available data is limited, the draft permit has included a reporting requirement for silver. If the additional data indicates that a limit is required, the permit may be reopened and a maximum daily limit for silver added.

Whole Effluent Toxicity

The Massachusetts Surface Water Quality Standards require that EPA criteria established pursuant to Section 304(a)(1) of the Clean Water Act be used as guidance in the interpretation of the following narrative criteria:

> *"All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life, or wildlife."*

EPA Region I has developed a toxicity control policy which requires wastewater treatment facilities to perform the toxicity testing in order to meet the state certification requirement.

National studies conducted by the Environmental Protection Agency have demonstrated that domestic sources contribute toxic constituents to WWTFs. These constituents include metals,

chlorinated solvents and aromatic hydrocarbons among others. The impact of the toxicity of several constituents in a single effluent is accomplished through whole effluent toxicity (WET) testing.

Based on the potential for toxicity and in accordance with EPA regulation and policy, the draft permit includes acute toxicity limitations and monitoring requirements. (See, e.g., "Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants", 50 Fed. Reg. 30,784 (July 24, 1985); see also, EPA's Technical Support Document for Water Quality-Based Toxics Control).

The principal advantages of biological techniques are: (1) the effects of complex discharges of many known and unknown constituents can be measured only by biological analyses; (2) bioavailability of pollutants after discharge is best measured by toxicity testing including any synergistic effects of pollutants; and (3) pollutants for which there are inadequate chemical analytical methods or criteria can be addressed. Therefore, toxicity testing is being used in conjunction with pollutant specific control procedures to control the discharge of toxic pollutants.

The frequency and type of WET tests depend on the dilution factor and risk factor. Pursuant to EPA Region 1 policy, and MassDEP's Implementation Policy for the Control of Toxic Pollutants in Surface Waters February 23, 1990, discharges having a dilution ratio less than 100:1 require acute toxicity testing four times per year with an LC_{50} equal to 100%. Also in accordance with that policy, the chronic (C-NOEC) whole effluent toxicity limit of 1.A.1. is calculated using the in-stream waste concentration (IWC) of the WWTF effluent. The IWC is the inverse of the dilution.

$$IWC = 1 \div 10 * 100\% = 10\%$$

This limit will be protective of ambient criteria since higher effluent flow will only occur when river flows are also much higher. The limit is established at critical low flow of the receiving water at which time effluent flows will be significantly lower than the permitted flow. Because WET monitoring is required during specific weeks, the potential for monitoring toxicity only during low flow periods is eliminated.

The EPA and the MassDEP have a will reduce the species requirement in the toxicity tests from two species to one species, if after an extended period of testing, the effluents show no chronic effects to the test organisms. Based upon a past data review, the current permit required testing for the daphnid, *Ceriodaphnia dubia*, only. The draft permit retains that same testing requirement.

V. Sludge

Section 405(d) of the CWA requires that sludge conditions be included in all POTW permits. The permittee's sludge is currently hauled away by a contractor for incineration. This sludge disposal practice is not regulated by the National Sewage Sludge Program. If the permittee

changes to a method of sludge disposal that is regulated, then the permittee must comply with the requirements of 40 CFR Part 503. A copy of the NPDES PERMIT SLUDGE COMPLIANCE GUIDANCE is being sent to the permittee along with the draft permit.

VI. Endangered Species Act (ESA)

Under Section 7 of the Endangered Species Act, federal agencies are required to ensure that any action they conduct, authorize, or fund is not likely to jeopardize the continued existence of a federally listed species, or result in the adverse modification of critical habitat. EPA has initiated informal consultation with both NOAA Fisheries and the United State Fish and Wildlife Service (USFWS) concerning listed species under their purviews. Listed species in this general area include shortnose sturgeon (*Acipenser brevirostrom*) for NOAA Fisheries, and the bald eagle (*Haliaeetus leucocephalus*) and Northeastern bulrush (*Scirpus ancistrochaetus)* for USFWS.

EPA believes the authorized discharge from this facility is not likely to adversely affect any federally-listed species, or their habitats for the following reasons:

- The permit will prohibit violations of the state water quality standards.
- Toxicity tests will be conducted on *Ceriodaphnia dubia* and current results of the toxicity tests are in compliance with the permit limits;
- This is a re-issuance of an existing permit

EPA is seeking concurrence with this opinion from NOAA Fisheries and USFWS through an informal consultation process.

VII. Essential Fish Habitat

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §1801 et seq. (1998)), EPA is required to consult with the National Fisheries Services (NOAA Fisheries) if EPA's action or proposed action that it funds, permits, or undertakes, may adversely impact any essential fish habitat (EFH). The Amendments broadly define essential fish habitat as: waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (16 U.S.C. § 1802 (10)). Adversely impact means any impact which reduces the quality and/or quantity of EFH (50 C.F.R. § 600.910 (a)). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

Essential fish habitat is only designated for species for which federal fisheries management plans exist (16 U.S.C. § 1855 (b) (1)(A)). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999.

There is no managed species believed to be present during one or more lifestages within the area which encompasses the discharge site.

Consequently, EPA believes that additional mitigation is not warranted.

VIII. State Certification Requirements

EPA may not issue a permit unless the Massachusetts Department of Environmental Protection (MassDEP) certifies that the effluent limitations included in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards. The MassDEP has reviewed the draft permit and advised EPA that the limitations are adequate to protect water quality. EPA has requested permit certification by the State pursuant to 40 CFR §124.53 and expects the draft permit will be certified.

IX. Comment Period and Procedures the Final Decision

All persons, including applicants, who believe any condition of the permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period to the EPA and MassDEP contacts listed below. Any person, prior to such date, may submit a request in writing for a public hearing to consider the draft permit to EPA and the State Agency. Such requests shall state the nature of the issues to be raised in the hearing. A public hearing may be held after at least thirty (30) days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit the Regional Administrator will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after the public hearing, if held, the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and to each person who has submitted written comments or requested notice.

X. EPA and MassDEP Contacts

Additional information concerning the draft permit may be obtained between the hours of 9 am and 5 pm, Monday through Friday from:

Mark Malone (CMP)
Municipal Permits Branch
U.S. EPA
One Congress Street - Suite 1100
Boston, MA 02114-2023
TEL. (617) 918-1619
FAX: (617) 918-2064

email: malone.mark@epa.gov

Paul Hogan
Department of Environmental Protection
Division of Watershed Management
627 Main Street
Worcester, MA 01608
TEL: (508) 767-2796
FAX: (508) 791-4131

paul.hogan@state.ma.us

_____

Stephen S. Perkins, Director
Office of Ecosystem Protection
U.S. EPA

Exhibit A
Nitrogen Loads

NH, VT, MA Discharges to Connecticut River Watershed

FACILITY NAME	PERMIT NUMBER	DESIGN FLOW (MGD)[1]	AVERAGE FLOW (MGD)[2]	TOTAL NITROGEN (mg/l)[3]	TOTAL NITROGEN - Existing Flow(lbs/day)[4]
NEW HAMPSHIRE					
Bethlehem Village District	NH0100501	0.340	0.220	19.600	35.962
Charlestown WWTF	NH0100765	1.100	0.360	19.600	58.847
Claremont WWTF	NH0101257	3.890	1.610	14.060	188.789
Colebrook WWTF	NH0100315	0.450	0.230	19.600	37.597
Groveton WWTF	NH0100226	0.370	0.290	19.600	47.405
Hanover WWTF	NH0100099	2.300	1.440	30.000	360.288
Hinsdale WWTF	NH0100382	0.300	0.300	19.600	49.039
Keene WWTF	NH0100790	6.000	3.910	12.700	414.139
Lancaster POTW	NH0100145	1.200	1.080	8.860	79.804
Lebanon WWTF	NH0100366	3.180	1.980	19.060	314.742
Lisbon WWTF	NH0100421	0.320	0.146	19.600	23.866
Littleton WWTF	NH0100153	1.500	0.880	10.060	73.832
Newport WWTF	NH0100200	1.300	0.700	19.600	114.425
Northumberland Village WPCF	NH0101206	0.060	0.060	19.600	9.808
Sunapee WPCF	NH0100544	0.640	0.380	15.500	49.123
Swanzey WWTP	NH0101150	0.167	0.090	19.600	14.712
Troy WWTF	NH0101052	0.265	0.060	19.600	9.808
Wasau Paper (industrial facility)	NH0001562		5.300	4.400	194.489
Whitefield WWTF	NH0100510	0.185	0.140	19.600	22.885
Winchester WWTP	NH0100404	0.280	0.240	19.600	39.231
Woodsville Fire District	NH0100978	0.330	0.230	16.060	30.806
New Hampshire Total		**24.177**	**19.646**		**2169.596**
VERMONT					
Bellows Falls	VT0100013	1.405	0.610	21.060	107.141
Bethel	VT0100048	0.125	0.120	19.600	19.616
Bradford	VT0100803	0.145	0.140	19.600	22.885
Brattleboro	VT0100064	3.005	1.640	20.060	274.373
Bridgewater	VT0100846	0.045	0.040	19.600	6.539
Canaan	VT0100625	0.185	0.180	19.600	29.424
Cavendish	VT0100862	0.155	0.150	19.600	24.520
Chelsea	VT0100943	0.065	0.060	19.600	9.808
Chester	VT0100081	0.185	0.180	19.600	29.424
Danville	VT0100633	0.065	0.060	19.600	9.808
Lunenberg	VT0101061	0.085	0.080	19.600	13.077
Hartford	VT0100978	0.305	0.300	19.600	49.039
Ludlow	VT0100145	0.705	0.360	15.500	46.537
Lyndon	VT0100595	0.755	0.750	19.600	122.598
Putney	VT0100277	0.085	0.080	19.600	13.077
Randolph	VT0100285	0.405	0.400	19.600	65.386
Readsboro	VT0100731	0.755	0.750	19.600	122.598
Royalton	VT0100854	0.075	0.070	19.600	11.442
St. Johnsbury	VT0100579	1.600	1.140	12.060	114.662

NH, VT, MA Discharges to Connecticut River Watershed

FACILITY NAME	PERMIT NUMBER	DESIGN FLOW (MGD)[1]	AVERAGE FLOW (MGD)[2]	TOTAL NITROGEN (mg/l)[3]	TOTAL NITROGEN - Existing Flow(lbs/day)[4]
Saxtons River	VT0100609	0.105	0.100	19.600	16.346
Sherburne Fire Dist.	VT0101141	0.305	0.300	19.600	49.039
Woodstock WWTP	VT0100749	0.055	0.050	19.600	8.173
Springfield	VT0100374	2.200	1.250	12.060	125.726
Hartford	VT0101010	1.225	0.970	30.060	243.179
Whitingham	VT0101109	0.015	0.010	19.600	1.635
Whitingham Jacksonville	VT0101044	0.055	0.050	19.600	8.173
Cold Brook Fire Dist.	VT0101214	0.055	0.050	19.600	8.173
Wilmington	VT0100706	0.145	0.140	19.600	22.885
Windsor	VT0100919	1.135	0.450	19.600	73.559
Windsor-Weston	VT0100447	0.025	0.020	19.600	3.269
Woodstock WTP	VT0100757	0.455	0.450	19.600	73.559
Woodstock-Taftsville	VT0100765	0.015	0.010	19.600	1.635
Vermont Totals		**15.940**	**10.960**		**1727.302**
MASSACHUSETTS					
Amherst	MA0100218	7.100	4.280	14.100	503.302
Athol	MA0100005	1.750	1.390	17.200	199.393
Barre	MA0103152	0.300	0.290	26.400	63.851
Belchertown	MA0102148	1.000	0.410	12.700	43.426
Charlemont	MA0103101	0.050	0.030	19.600	4.904
Chicopee	MA0101508	15.500	10.000	19.400	1617.960
Easthampton	MA0101478	3.800	3.020	19.600	493.661
Erving #1	MA0101516	1.020	0.320	29.300	78.196
Erving #2	MA0101052	2.700	1.800	3.200	48.038
Erving #3	MA0102776	0.010	0.010	19.600	1.635
Gardner	MA0100994	5.000	3.700	14.600	450.527
Greenfield	MA0101214	3.200	3.770	13.600	427.608
Hadley	MA0100099	0.540	0.320	25.900	69.122
Hardwick G	MA0100102	0.230	0.140	14.600	17.047
Hardwick W	MA0102431	0.040	0.010	12.300	1.026
Hatfield	MA0101290	0.500	0.220	15.600	28.623
Holyoke	MA0101630	17.500	9.700	8.600	695.723
Huntington	MA0101265	0.200	0.120	19.600	19.616
Monroe	MA0100188	0.020	0.010	19.600	1.635
Montague	MA0100137	1.830	1.600	12.900	172.138
N Brookfield	MA0101061	0.760	0.620	23.100	119.445
Northampton	MA0101818	8.600	4.400	22.100	810.982
Northfield	MA0100200	0.280	0.240	16.800	33.627
Northfield School	MA0032573	0.450	0.100	19.600	16.346
Old Deerfield	MA0101940	0.250	0.180	9.200	13.811
Orange	MA0101257	1.100	1.200	8.600	86.069
Palmer	MA0101168	5.600	2.400	18.800	376.301
Royalston	MA0100161	0.040	0.070	19.600	11.442
Russell	MA0100960	0.240	0.160	19.600	26.154
Shelburne Falls	MA0101044	0.250	0.220	16.900	31.008
South Deerfield	MA0101648	0.850	0.700	7.900	46.120
South Hadley	MA0100455	4.200	3.300	28.800	792.634
Spencer	MA0100919	1.080	0.560	13.600	63.517
Springfield	MA0103331	67.000	45.400	4.300	1628.135
Sunderland	MA0101079	0.500	0.190	8.700	13.786
Templeton	MA0100340	2.800	0.400	26.400	88.070

NH, VT, MA Discharges to Connecticut River Watershed

FACILITY NAME	PERMIT NUMBER	DESIGN FLOW (MGD)[1]	AVERAGE FLOW (MGD)[2]	TOTAL NITROGEN (mg/l)[3]	TOTAL NITROGEN - Existing Flow(lbs/day)[4]
Ware	MA0100889	1.000	0.740	9.400	58.013
Warren	MA0101567	1.500	0.530	14.100	62.325
Westfield	MA0101800	6.100	3.780	20.400	643.114
Winchendon	MA0100862	1.100	0.610	15.500	78.855
Woronoco Village	MA0103233	0.020	0.010	19.600	1.635
Massachusetts Totals		**166.010**	**106.950**		**9938.820**

1. Design flow – typically included as a permit limit in MA and VT but not in NH.
2. Average discharge flow for 2004 – 2005. If no data in PCS, average flow was assumed to equal design flow.
3. Total nitrogen value based on effluent monitoring data. If no effluent monitoring data, total nitrogen value assumed to equal average of MA secondary treatment facilities (19.6 mg/l), average of MA seasonal nitrification facilities (15.5 mg/l), or average of MA year round nitrification facilities (12.7 mg/l). Average total nitrogen values based on a review of 27 MA facilities with effluent monitoring data. Facility is assumed to be a secondary treatment facility unless ammonia data is available and indicates some level of nitrification.
4. Current total nitrogen load.

Total Nitrogen Load = 13,836 lbs/day
MA (41 facilities) = 9,939 lbs/day (72%)
VT (32 facilities) = 1,727 lbs/day (12%)
NH (21 facilities) = 2170 lbs/day (16%)
TMDL Baseline Load = 21,672 lbs/day

TMDL Allocation = 16,254 lbs/day (25% reduction)

MA Discharges to Housatonic River Watershed

FACILITY NAME	PERMIT NUMBER	DESIGN FLOW (MGD)[1]	AVERAGE FLOW (MGD)[2]	TOTAL NITROGEN (mg/l)[3]	TOTAL NITROGEN - Existing Flow(lbs/day)[4]
MASSACHUSETTS					
Crane	MA0000671		3.100	8.200	212.003
Great Barrington	MA0101524	3.200	2.600	17.000	368.628
Lee	MA0100153	1.000	0.870	14.500	105.209
Lenox	MA0100935	1.190	0.790	11.800	77.745
Mead Laurel Mill	MA0001716		1.500	6.400	80.064
Mead Willow Mill	MA0001848		1.100	4.600	42.200
Pittsfield	MA0101681	17.000	12.000	12.400	1240.992
Stockbridge	MA0101087	0.300	0.240	11.100	22.218
West Stockbridge	MA0103110	0.076	0.018	15.500	2.327
Massachusetts Totals			**22.218**		**2151.386**

1. Design flow – typically included as a permit limit in MA and VT but not in NH.
2. Average discharge flow for 2004 – 2005. If no data in PCS, average flow was assumed to equal design flow.
3. Total nitrogen value based on effluent monitoring data. If no effluent monitoring data, total nitrogen value assumed to equal average of MA secondary treatment facilities (19.6 mg/l), average of MA seasonal nitrification facilities (15.5 mg/l), or average of MA year round nitrification facilities (12.7 mg/l). Average total nitrogen values based on a review of 27 MA facilities with effluent monitoring data. Facility is assumed to be a secondary treatment facility unless ammonia data is available and indicates some level of nitrification.
4. Current total nitrogen load.

Total Nitrogen Load = 2151.386 lbs/day

TMDL Baseline Load = 3,286 lbs/day
TMDL Allocation = 2,464 lbs/day (25% reduction)

MA Discharges to Thames River Watershed

FACILITY NAME	PERMIT NUMBER	DESIGN FLOW (MGD)[1]	AVERAGE FLOW (MGD)[2]	TOTAL NITROGEN (mg/l)[3]	TOTAL NITROGEN - Existing Flow(lbs/day)[4]
MASSACHUSETTS					
Charlton	MA0101141	0.450	0.200	12.700	21.184
Leicester	MA0101796	0.350	0.290	15.500	37.488
Oxford	MA0100170	0.500	0.230	15.500	29.732
Southbridge	MA0100901	3.770	2.900	15.500	374.883
Sturbridge	MA0100421	0.750	0.600	10.400	52.042
Webster	MA0100439	6.000	3.440	17.400	499.199
Massachusetts Totals		**11.820**	**7.660**		**1014.528**

1. Design flow – typically included as a permit limit in MA and VT but not in NH.
2. Average discharge flow for 2004 – 2005. If no data in PCS, average flow was assumed to equal design flow.
3. Total nitrogen value based on effluent monitoring data. If no effluent monitoring data, total nitrogen value assumed to equal average of MA secondary treatment facilities (19.6 mg/l), average of MA seasonal nitrification facilities (15.5 mg/l), or average of MA year round nitrification facilities (12.7 mg/l). Average total nitrogen values based on a review of 27 MA facilities with effluent monitoring data. Facility is assumed to be a secondary treatment facility unless ammonia data is available and indicates some level of nitrification.
4. Current total nitrogen load.

Total Nitrogen Load = 1014.528 lbs/day

TMDL Baseline Load = 1,253 lbs/day

TMDL Allocation = 939 lbs/day (25% reduction)

RESPONSE TO COMMENTS

NPDES PERMIT No. MA0100005
Town of Athol, Massachusetts

On November 5, 2007, the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP) released a draft National Pollutant Discharge Elimination System (NPDES) permit for public notice and comment developed pursuant to an application from the Town of Athol, Massachusetts for the reissuance of its permit to discharge wastewater to the designated receiving water, the Millers River. The public comment period for this draft permit ended on December 4, 2007. Comments were received from Ms. Mary A. Colligan, Assistant Regional Administrator for Protected Resources of the National Oceanic and Atmospheric Administration in a letter dated November 7, 2007, Mr. Douglas A. Walsh, Superintendent of the Athol Department of Public Works, in a letter dated December 4, 2007 and Ms. Andrea F. Donlon, River Steward of the Connecticut River Watershed Council, in a letter dated December 4, 2007.

After a review of the comments received, EPA has made a final decision to issue the permit authorizing this discharge. The following are the comments and EPA's response to those comments, including changes that have been made to the final permit from the draft as a result of the comments. The comment letters are part of the administrative record and are paraphrased herein. A copy of the final permit is available online at http://www.epa.gov/region1/npdes/permits_listing_ma.html or may be obtained by writing or by calling Mark Malone, EPA NPDES Permits Program (CMP), 1 Congress Street, Suite 1100, Boston, MA 02114-2023; telephone: (617) 918-1619.

Please note that an Attachment B, Summary of Required Reports, has been added to the final permit as a reference guide for the permittee.

Comments received from Ms. Mary A. Colligan, Assistant Regional Administrator for Protected Resources of the National Oceanic and Atmospheric Administration:

Comment A.1.

Because no listed federally endangered species are known to occur in the Millers River, no further coordination with the National Marine Fisheries Service Protected Resources Division is necessary. The NMFS, US Fish and Wildlife Service, and EPA are currently in Section 7 consultations on EPA's aquatic life criteria (national 304(a) consultation) Those consultations may result in effects not considered in this evaluation or revisions to national water quality criteria and standards. Either outcome might require NMFS to reconsider the conclusion stated above.

Response A.1.

If the ongoing consultation indicates that revised permit limitations may be necessary, the permit could be modified in accordance with 40 CFR §122.62(a)(2) and new permit limitations imposed.

Comments received from Mr. Douglas A. Walsh, Superintendent of the Athol Department of Public Works.

Comment B.1.

The in-stream concentration used in the calculation for summer phosphorus limit of 0.52 mg/l is based upon only one in-stream sample. We object to using this methodology as one sample provides only a very limited view of the stream condition and does not reflect the average and long term in-stream phosphorus conditions.

Response B.1.

The in-stream phosphorus concentration used in the phosphorus limit calculation is an average of two samples, 65 ug/l and 40 ug/l, taken in July and August, 2000, respectively. While additional in-stream data would certainly be desirable, permit limitations are developed to meet water quality standards using the information available at the time. In this case, the available information consists of the two cited samples.

Comment B.2.

The Fact Sheet states that EPA decided to apply the Gold Book criteria which provides for an in-stream phosphorus concentration up to 0.100 mg/l. With a dilution factor of 10, we propose that EPA raise the summer phosphorus limit from 0.52 mg/l to 1.0 mg/l in accordance with the Gold Book criteria.

Response B.2.

As noted by the commenter, the Gold Book criteria is an in-stream concentration. The calculation suggested by the commenter assumes a background phosphorus concentration of 0 mg/l in the receiving water upstream of the treatment plant discharge. As discussed in the Fact Sheet and in Response B.1. above, information included in the Water Quality Assessment Report indicated otherwise. The calculation of the treatment plant's phosphorus limit takes into account that background phosphorus concentration, and resulted in the 0.52 mg/l phosphorus limit.

Comment B.3.

We propose that the effluent total phosphorus compliance be computed using a 60-day rolling average rather than a monthly value as this more accurately reflects stream loadings and their effects.

Response B.3.

The imposition of a 30-day average is consistent with federal regulations governing the NPDES programs. *See* 40 C.F.R. § 122.45(d)(2). ("For continuous discharges all permit effluent limitations, standards and prohibitions, including those necessary to achieve water quality standards, shall unless impracticable be stated as average weekly and average monthly discharge limitations for POTWs"). In addition, during the growing season (when the receiving water is subject to an excessive amount of nutrients) aquatic plant biomass growth can proliferate in relatively short periods of time, so it is important to control both short and long term nutrient loadings into the receiving water.

Comment B.4.

The WWTP upgrade scheduled for completion this year is designed to achieve compliance with a 1.0 mg/l phosphorus limit of the 2003 Permit. This will be accomplished by chemical precipitation using poly aluminum chloride dosed into the aeration tanks or the inlet to the secondary clarifiers. Our engineers advise us that the process was not designed to routinely achieve a phosphorus limit of 0.52 mg/l and violations are expected. Under ideal conditions, the effluent Total Phosphorus is expected to range between 0.4 and 0.9 mg/l. Accordingly we request that the phosphorus limit be maintained at 1.0 mg/l and that a reasonable time be provided to allow the completion of the upgrade construction, startup, process optimization, and testing to determine if lower Total Phosphorus values can be reasonably achieved.

Response B.4.

The upgrade that was designed to meet the 1.0 mg/l current phosphorus limit is expected to be completed in early 2008. The commenter has expressed concern that the upgraded facilities will not be able to meet the new limit of 0.52 mg/l. While EPA believes that it may be possible for the upgraded facility to achieve the new limit, it also recognizes that this may not occur. Therefore, language has been added to the permit requiring the permittee to inform EPA and the MassDEP of its ability to meet the 0.52 mg/l phosphorus limit one year after the effective date of the final permit. If the facility can meet the 0.52 mg/l phosphorus limit, that limit will become effective at that time. If the facility cannot meet the 0.52 mg/l phosphorus limit, 1.0 mg/l will remain as an interim limit and the phosphorus limit of 0.52 mg/l will become effective in accordance with the compliance schedule included in the final permit.

Comment B.5.

Athol is willing to undertake efforts to lower phosphorus loads through the use of a mass loading rather than a concentration limit. We request that the final permit have mass limits based upon the design flow and phosphorus criteria of 0.75 mg/l in the summer and 1.0 mg/l in the winter rather than concentration limits, use a 60-day rolling average for phosphorus compliance, and require annual reporting of the efforts and effectiveness of its program to optimize phosphorus removal.

Response B.5.

Permit limits are usually expressed in the same units as the applicable water quality criteria. In this case, the phosphorus water quality criterion is an in-stream concentration and, therefore, the permit limit is also expressed as a concentration. The use of a 60-day rolling average is discussed in Response B.3 above. Since the summer phosphorus limit of 0.52 mg/l has been calculated to meet the in-stream concentration criteria, a mass limit based upon the suggested summer effluent concentration of 0.75 mg/l would obviously violate that in-stream water quality criteria if the treatment plant were discharging at design flow. The 1.0 mg/l winter concentration limit is to ensure that the phosphorus being discharged is in soluble form and not susceptible to deposition and eventual uptake during warmer weather. Compliance with the 0.52 mg/l phosphorus limit will make annual reporting efforts on phosphorus reduction unnecessary.

Comment B.6.

EPA states that it reserves the right for a more stringent phosphorus limit should a TMDL study indicate the need. It is our belief that imposing the 0.52 mg/l limit is arbitrary and premature and should only be imposed after the TMDL has been completed and has full public input. At a minimum, the Town should be allowed time to investigate alternative means of reducing phosphorus loads and to negotiate a compliance schedule to study and implement any necessary process changes. Accordingly, we request EPA/MassDEP conduct site specific studies to identify more reliable in-stream phosphorus concentrations and phosphorus discharges from non-point sources near Athol. We also request that a TMDL for the Millers River be prepared by EPA and MassDEP that will account for all for all phosphorus sources and will integrate this information with all states contributing to the Connecticut River basin.

Response B.6.

A TMDL is not a requirement for the development of water quality-based permit limits. The limits in the permit were developed to meet water quality standards using EPA-recommended water quality criteria and other available information. As discussed above in Response B.5., additional time has been given to the Town to meet the 0.52 mg/l limit and, should provide adequate time to investigate phosphorus reduction programs and to complete any necessary facilities. The priorities for conducting site specific studies and TMDLs are established by the State.

Comment B.7.

A regional Comprehensive Wastewater Management Plan (CWMP) has not been prepared for the Millers River basin as has been done for the Assabet River basin. Hence, EPA's assignment of a reduced phosphorus limit for Athol is premature. We propose that EPA/DEP conduct a regional CWMP to determine the need, schedule, and implementation, and type of phosphorus treatment for all WWTPs in the Millers River Basin.

Response B.7.

CWMPs are conducted primarily by municipalities to address their individual wastewater needs. In the case of the Assabet River basin, the individual communities in the area conducted the referenced CWMP. EPA and the Mass DEP do not conduct CWMPs.

Comment B.8.

The text in Section E Special Conditions regarding the optimization of nitrogen removal is ambiguous. The Town is being required to complete an evaluation of alternative methods to operate the existing WWTP to optimize the removal of nitrogen. This evaluation along with the recommended operational changes is to be submitted in a report in twelve months from the date of the final permit. The Town is then required to implement the operational changes in order to maintain the existing mass load for total nitrogen of 199 lbs/day. The Town would like clarification as to the timetable regarding the implementation of the recommended operational changes and the intent of the special conditions for nitrogen control. We request that language clearly state that the operational control changes to optimize the removal of nitrogen be implemented after the required report is approved by EPA and MassDEP. We also request that EPA and MassDEP clarify their intent regarding removal of total nitrogen, additional basin-wide studies that may be planned, and if a limit for total nitrogen is planned for the Athol WWTP and others.

Response B.8.

It is intended that during the first year of the permit, alternative methods of operating the upgraded facility to optimize nitrogen removal will be evaluated. At the end of the year the permittee will submit a report to the EPA and MassDEP of its findings. The optimal operational method will be self-implementing by the permittee at the beginning of the second year and does not require EPA or MassDEP approval. It is the intent of EPA and MassDEP that treatment facilities optimize nitrogen removal and, at a minimum, the facilities must not increase their nitrogen discharge loadings. These requirements are necessary to ensure that the TMDL target continues to be met. The TMDL for Long Island Sound is being revised and, depending on the results, Athol may receive numerical nitrogen limits in the future.

Comment B.9.

There are no provisions in the current upgrade for a biological nitrogen removal process. Accordingly, we request that the Special Condition for nitrogen removal be clarified so that the timing for the implementation of operational modifications is clear. We also request that the Total Nitrogen load of 199 lbs/day which is based on the 2004-2005 DMR data be recalculated using the Town of Athol's current contribution as a percent of the Connecticut River total current load and applied to the TMDL 25 % reduction target value on page 7 of the Fact Sheet resulting in a nitrogen load of 234 lbs/day as shown below.

(Athol WWTP current load ÷ CT River current load) x TMDL load =
(199 lbs/day ÷13836 lbs/day) x 16254 = 234 lbs/day

Response B.9.

The timing for the implementation of this Special Condition is discussed in Response B. 8. above. It is the intent of this special condition that nitrogen removal be optimized through process control for the facility as presently configured. Meeting or improving nitrogen removals based on actual past performance is clearly achievable and should not require any physical modifications to the treatment facility. Increasing the nitrogen load currently being discharged by the Town of Athol from the existing 199 lbs/day to 234 lbs/day would result in an increase in the current nitrogen loading from the Connecticut River to Long Island Sound, contrary to the nitrogen control strategy. Consequently, the nitrogen load shall remain at 199 lbs/day.

Comment B.10.

The issues of phosphorus and nitrogen removal are complex and can only be addressed in a comprehensive basin-wide approach with public participation. The issues can not be solved by any one or even a few wastewater treatment plants but must consider all sources and controls.

Response B.10.

This segment of the Millers River (MA35-04) is on the Final 2006 Integrated List of Waters as a Category 5 Water, "Waters requiring a TMDL". Among the pollutants needing a TMDL are nutrients, which in a fresh water such as the Milers River means phosphorus. A Total Maximum Daily Load (TMDL) is a basin-wide approach which considers all sources and controls. Absent a TMDL, EPA must still issue permits which meet water quality standards. Part 314 §405 (5)(c) of the state water quality standards requires that nutrients "Shall not exceed the site-specific limits necessary to control accelerated or cultural eutrophication…" EPA cites the national recommended criteria for phosphorus as appropriate to interpret and meet the State narrative criteria. The use of the criteria and permit limit development are explained in the Fact Sheet. As previously noted, the nitrogen requirements are based upon a TMDL for Long Island Sound.

Comments received from Ms. Andrea F. Donlon, River Steward of the Connecticut River Watershed Council

Comment C.1.

The Millers River is used by outdoor enthusiasts including teams of canoers who participate in a race in early April between Athol and Orange.

Response C.1.

Because the commenter has provided an example of recreational activity occurring in early April the disinfection season has been extended to begin April 1.

Comment C.2.

We are glad the phosphorus limit has been lowered to 0.52 mg/l and a winter limit of 1.0 mg/l been established. However, we feel that it hasn't gone far enough. Relying on the Gold Book criteria, an effects-based approach, rather than the ecoregion criteria, a referenced-condition approach, does not seem adequate to bring this segment of the river out of non-attainment. We recommend that the limit be lowered to 0.2 mg/l and the Town of Athol be given an implementation schedule to meet that limit.

Response C.2.

The rationale for using the effects-based approach (Gold Book criteria) over the referenced-conditions approach (ecoregion criteria) is presented in the Fact Sheet. The Gold Book criteria applied at 7Q10 conditions will result in ambient concentrations within the range of effect-based criteria recommendations in the ecoregion criteria document and the national nutrient guidance document since these criteria apply over a longer averaging period (peak growing season). The commenter suggested a 0.2 mg/l phosphorus limit, the highest and best practicable treatment (HBPT) limit. A 0.2 mg/l limit would result in an in-stream phosphorus concentration of 0.07 mg/l, less than the Gold Book in-stream criterion of 0.1 mg/l. Therefore, EPA believes that, based on current water quality information, the HBPT phosphorus limit of 0.2 mg/l is not necessary to achieve water quality standards.

Comment C.3.

We recommend that testing for soluble reactive phosphorus be included in the permit to confirm that the winter release of phosphorus is soluble as presumed.

Response C.3.

We agree and a requirement to test for dissolved orthophosphate has been added to the permit.

Comment C.4.

We would like to see the nitrogen limits also reported in lbs/day as in the current permit.

Response C.4.

We agree and a requirement to report nitrogen sampling results in lbs/day has been added to the final permit.

Comment C.5.

We are heartened to see the permit require the permittee to evaluate and implement methods to optimize nitrogen removal. However, we note that the implementation should take place in order to reduce mass discharge loading of total nitrogen, not maintain the existing load as stated.

Response C.5.

The Waste Load Allocation for out-of-basin sources in the TMDL conducted by the Connecticut DEP for Long Island Sound required an aggregate 25% reduction from the baseline total nitrogen loading estimated in the TMDL. As discussed in the Fact Sheet, data indicated that this 25% reduction in the baseline total nitrogen loading is already being met. The permit contains language to maintain those current conditions and to encourage further reductions where feasible. As previously mentioned the TMDL for Long Island Sound is being revised and, may result in numeric limits requiring further reductions.

Comment C.6.

The nitrogen discussion in the Fact Sheet references several attachments which were not included and we were not able to check the data sources. In a July 12, 2007 letter commenting on the Holyoke draft permit the CT DEP mentions a TMDL point source load of 9,836 lb/day from point sources in Massachusetts. The CT DEP continues showing a current point source load of 9,938 lbs/day in the Massachusetts section of the Connecticut River watershed. This is not the 23.4 % reduction by 2004 or 43.9 % reduction by 2009 mandated by the TMDL. This is an increase. The nitrogen loadings attributable to Athol are a bit high compared to similar facilities of similar size in the watershed. We'd like to see EPA and MassDEP do a better job of limiting nitrogen from Massachusetts to Long Island Sound by establishing permit limits.

Response C.6.

Copies of the referenced Attachments 2 and 3 and Exhibit A are transmitted herein.

The referenced CT DEP letter alluded to the fact that the estimated 9,836 lbs/day current loadings from Massachusetts facilities in the Connecticut River basin have approximately the same relative impact on dissolved oxygen in Long Island Sound as those plants discharging in Nassau County, NY and are higher than many of the areas currently identified in the TMDL wasteload allocation (WLA). The CT DEP (9,836 lbs/day) and EPA (9,938 lbs/day) estimated current nitrogen loadings for Massachusetts are slightly different estimates of the same nitrogen load. This difference is acknowledged and explained in the Fact Sheet. This estimated current nitrogen load is not the baseline loading estimate to be reduced by 25% as the stated goal of the TMDL. Rather, the estimated baseline loading for the Connecticut River from the TMDL is 21,672 lbs/day for Massachusetts, New Hampshire, and Vermont. A 25% reduction in this baseline loading results in 16,254 lbs/day for the Connecticut River (21,672 * 75% = 16,254). As discussed in the Fact Sheet, EPA's estimate of the current loading is only 13,836 lbs/day, less than the 25% reduction goal.

A facility's ability to remove nitrogen can be affected by many factors such as treatment process and plant configuration. Athol's nitrogen loads are within a range of values normally expected in secondary treatment plants. The current strategy of requiring permittees to optimize the nitrogen removal of their facilities and to increase nitrogen sampling provides a reasonable approach to address the water quality issues of Long Island Sound.

Comment C.7.

The Fact Sheet states that the L.S. Starrett Co. is a categorical user of the Athol WWTP. However, Starrett has its own NPDES permit and its Fact Sheet indicates it may no longer be discharging noncontact cooling water to the Athol plant. Please clarify.

Response C.7.

The individual NPDES permit (MA0001350) for L.S. Starrett Co. allows the discharge of non-contact cooling water and process wastewater to the Millers River. L.S. Starrett Co. is also authorized to discharge wastewater to the Town of Athol treatment works. Because the Town of Athol does not have an approved pretreatment program, L.S. Starrett Co. is required to report twice per year to the control authority on its continued compliance with categorical pretreatment standards for metal finishers. Because Massachusetts is a non-delegated state, the control authority is the EPA.

Comment C.8.

The facility data sheet (Attachment 1) does not provide the reviewer with any data for pH, fecal coliform, or daily maximum flows. All this information would have been useful for public review of the draft permit. Why were they missing?

Response C.8.

The amount of DMR data is quite voluminous and is not presented in its entirety within the Fact Sheet for practical reasons. The available Discharge Monitoring Report (DMR) data is examined in the development of the permit limitations, requirements, and conditions. Data in support of new permit limits or conditions is normally included in the Fact Sheet. Any additional data presented in the Fact Sheet for informational purposes is at the discretion of the permit writer.

Attachment 2 – Table of Loads from Long Island Sound Watershed Segments

End-of-pipe point source nitrogen loads, equalized nitrogen loads with applied equivalency factors for combined attenuation and LIS attenuation (from SWEM model) effects by zone and tier (see Figure 3 of Attachment 1, the TMDL), and for NH, VT and MA sources, and percent benefit towards the improvement of hypoxic conditions in western Long Island Sound.				
Zone/Tier	End-of-pipe Nitrogen Load (lbs/day)**	Combined Equivalency Factor	Equalized Nitrogen Load (E-lbs/day)	Relative Effect (%)
1-1	5719	0.18	1029	1.09
1-2	42	0.16	7	0.01
1-3 Quinebaug	691	0.14	97	0.10
1-3 Shetucket	648	0.15	97	0.10
2-1	0	0.26	0	
2-2	10657	0.24	2558	
2-3	3945	0.23	907	
2-4 (Farmington R.)	2502	0.21	525	
MA	9836	0.21	2066	
NH	1616	0.19	307	
VT	1523	0.19	289	
3-1	9809	0.59	5787	6.12
3-2	2068	0.49	1013	1.07
4-1	3075	0.90	2768	2.93
4-2 Housatonic	1487	0.62	922	0.98
4-2 Naugatuck	4813	0.81	3899	4.12
4-3 Housatonic	188	0.47	88	0.09
4-3 Naugatuck	680	0.81	551	0.58
5-1	5194	0.91	4727	5.00
6-1	6071	1.00	6071	6.42
7-1	4585	0.87	3989	4.22
8-1	99070	0.48	47554	50.31
9-1	51601	0.12	6192	6.55
10-1 (Nassau Co.)	2650	0.80	2120	2.24
11-1 west*	1044	0.88	919	0.97
11-1 east*	76	0.51	39	0.04
* Estimated pending SWEM confirmation. ** Excludes de minimis facilities				

Attachment 3 – EPA End of pipe nitrogen loading estimates for MA, NH and VT (D. Pincumbe, personal communication)

NAME	NUMBER	DESIGN FLOW (MGD)[1]	AVERAGE FLOW (MGD)[2]	TOTAL NITROGEN (mg/l)[3]	TOTAL NITROGEN (lbs/day)[4]	Exp. Date
Bethlehem	NH0100501		0.19	19.6	31.1	
Charlestown	NH0100765		0.38	19.6	62.1	
Claremont	NH0101257		1.60	14.0[6]	186.8	2005
Colebrook	NH0100315		0.22	19.6	36.0	
Groveton	NH0100226		0.49	19.6	80.1	
Woodsville	NH0100978		0.19	16.0[6]	25.4	
Hinsdale	NH0100382		0.27	19.6	44.1	
Lancaster	NH0100145		0.98	8.8[6]	71.9	2005
Lisbon	NH0100421		0.17	19.6	27.8	
Littleton	NH0100153		0.77	10.0[6]	64.2	
Newport	NH0100200		0.65	19.6	106.2	2006
Keene	NH0100790	6.0	3.47	12.7	367.5	1999
Northumberland	NH0101206		0.06	19.6	9.8	
Sunapee	NH0100544		0.35	15.5	44.7	
Troy	NH0101052		0.10	19.6	16.3	
Lebanon	NH0100366		1.87	19.0[6]	296.3	2011
Swanzey	NH0101150		0.09	19.6	14.7	
Whitefield	NH0100510		0.12	19.6	19.6	
Winchester	NH0100404		0.23	19.6	37.6	
Hanover	NH0100099		1.5	19.6	245.2	
			13.70		**1,787.4**	
Bellows Falls	VT010013	1.40[5]	0.61	21.0[6]	106.8	
Bethel	VT0100048	0.12[5]	0.12	19.6	19.6	
Bradford	VT0100803	0.14[5]	0.14	19.6	22.9	
Brattleboro	VT010064	3.00[5]	1.64	20.0[6]	273.6	2009
Bridgewater	VT0100846	0.04[5]	0.04	19.6	6.5	
Canaan	VT0100625	0.18[5]	0.18	19.6	29.4	
Cavendish	VT0100862	0.15[5]	0.15	19.6	24.5	
Chelsea	VT0100943	0.06[5]	0.06	19.6	9.8	
Chester	VT010081	0.18[5]	0.18	19.6	29.4	
Danville	VT0100633	0.06[5]	0.06	19.6	9.8	
Lunenberg	VT0101061	0.08[5]	0.08	19.6	13.1	
Hartford	VT0100978	0.30[5]	0.3	19.6	49.0	
Ludlow	VT0100145	0.70[5]	0.36	15.5	46.5	
Lyndon	VT0100595	0.75[5]	0.75	19.6	122.6	2007
Putney	VT0100277	0.08[5]	0.08	19.6	13.1	
Randolph	VT0100285	0.40[5]	0.4	19.6	65.4	

NAME	NUMBER	DESIGN FLOW (MGD)[1]	AVERAGE FLOW (MGD)[2]	TOTAL NITROGEN (mg/l)[3]	TOTAL NITROGEN (lbs/day)[4]	Exp. Date
Readsboro	VT0100731	0.75[5]	0.75	19.6	122.6	2007
Royalton	VT0100854	0.07[5]	0.07	19,6	11.4	
ST. Johnsbury	VT0100579	1.60	1.14	12.0[6]	114.1	2009
Saxtons River	VT0100609	0.10[5]	0.1	19.6	16.3	
Sherburne Fire Dist.	VT0101141	0.30[5]	0.3	19.6	49.0	
Woodstock WWTP	VT0100749	0.05[5]	0.05	19.6	8.2	
Springfield	VT0100374	2.20	1.25	12.0[6]	125.1	2003
Hartford	VT0101010	1.22[5]	0.97	30.0[6]	242.7	2006
Whitingham	VT0101109	0.01[5]	0.01	19.6	1.6	
Whitingham Jacksonville	VT0101044	0.05[5]	0.05	19.6	8.2	
Cold Brook Fire Dist.	VT0101214	0.05[5]	0.05	19.6	8.2	
Wilmington	VT0100706	0.14[5]	0.14	19.6	22.9	
Windsor	VT0100919	1.13[5]	0.45	19.6	73.6	
Windsor-Weston	VT0100447	0.02[5]	0.02	19.6	3.3	
Woodstock WTP	VT0100757	0.45[5]	0.45	19.6	73.6	
Woodstock-Taftsville	VT0100765	0.01[5]	0.01	19.6	1.6	
			10.96		**1724.4**	
Huntington	MA0101265	0.20[5]	0.12	19.6	19.6	
Russell	MA0100960	0.24	0.16	19.6	26.2	
Westfield	MA0101800	6.10[5]	3.78	20.4	643.1	2005
Woronoco Village	MA0103233	0.02	0.01	19.6	1.6	
Charlemont	MA0103101	0.05[5]	0.03	19.6	4.9	
Greenfield	MA0101214	3.20	3.77	13.6	427.6	2007
Monroe	MA0100188	0.02	0.01	19.6	1.6	
Old Deerfield	MA0101940	0.25[5]	0.18	9.2	13.8	
Shelburne Falls	MA0101044	0.25[5]	0.22	16.9	31.0	
Amherst	MA0100218	7.10	4.28	14.1	503.3	2005
Barre	MA0103152	0.30[5]	0.29	26.4	63.8	
Belchertown	MA0102148	1.00	0.41	12.7	43.4	
Easthampton	MA0101478	3.80	3.02	19.6	493.7	2000
Hadley	MA0100099	0.54	0.32	25.9	69.1	
Hatfield	MA0101290	0.50[5]	0.22	15.6	28.6	
Holyoke	MA0101630	17.50[5]	9.70	8.6	695.7	2005

NAME	NUMBER	DESIGN FLOW (MGD)[1]	AVERAGE FLOW (MGD)[2]	TOTAL NITROGEN (mg/l)[3]	TOTAL NITROGEN (lbs/day)[4]	Exp. Date
Montague	MA0100137	1.83[5]	1.60	12.9	172.1	2006
Northampton	MA0101818	8.60[5]	4.40	22.1	811.0	2005
Northfield School	MA0032573	0.45	0.10	19.6	16.3	
Northfield	MA0100200	0.28	0.24	16.8	33.6	
South Deerfield	MA0101648	0.85	0.70	7.9	46.1	
South Hadley	MA0100455	4.20[5]	3.30	28.8	792.6	2005
Sunderland	MA0101079	0.50[5]	0.19	8.7	13.8	
Athol	MA0100005	1.75[5]	1.39	17.2	199.4	2007
Erving #2	MA0101052	2.70[5]	1.80	3.2	48.0	2007
Erving #1	MA0101516	1.02[5]	0.32	29.3	78.2	
Erving #3	MA0102776	0.01	0.01	19.6	1.6	
Gardner	MA0100994	5.00[5]	3.70	14.6	450.5	2007
Orange	MA0101257	1.10[5]	1.20	8.6	86.1	
Royalston	MA0100161	0.04[5]	0.07	19.6	11.4	
Templeton	MA0100340	2.80[5]	0.40	26.4	88.1	
Winchendon	MA0100862	1.10[5]	0.61	15.5	78.9	
Chicopee	MA0101508	15.50[5]	10.0	19.4	1,618.0	2010
Hardwick W	MA0102431	0.04[5]	0.01	12.3	1.0	
Hardwick G	MA0100102	0.23[5]	0.14	14.6	17.0	
N Brookfield	MA0101061	0.76[5]	0.62	23.1	119.4	2005
Palmer	MA0101168	5.60[5]	2.40	18.8	376.3	2005
Spencer	MA0100919	1.08[5]	0.56	13.6	63.5	
Ware	MA0100889	1.00[5]	0.74	9.4	58.0	
Warren	MA0101567	1.50	0.53	14.1	62.3	
Springfield			45.4	4.3	1,628.1	2006
			104.05		**9,938.3**	

1. Design flow – typically included as a permit limit in MA and VT but not in NH.

2. Average discharge flow for 2004 – 2005. If no data in PCS, average flow was assumed to equal design flow.

3. Total nitrogen value based on effluent monitoring data. If no effluent monitoring data, total nitrogen value assumed to equal average of MA secondary treatment facilities (19.6 mg/l), average of MA seasonal nitrification facilities (15.5 mg/l), or average of MA year round nitrification facilities (12.7 mg/l). Average total nitrogen values based on a review of 27 MA facilities with effluent monitoring data. Facility is assumed to be a secondary treatment facility unless ammonia data is available and indicates some level of nitrification.

4. Current total nitrogen load.

5. Flow limit is based on an annual average rather than a monthly average.

6. Effluent total nitrogen data from USGS study.